RTIP ID# *(required)* ORA000118

TCWG Consideration Date: June 30, 2009

Project Description *(clearly describe project)*

Existing Conditions

The project is located in the City of Irvine, in Orange County. The project proposes improvements on Sand Canyon Avenue from Interstate 5 to Oak Canyon Road/Laguna Canyon Road. This segment of Sand Canyon Avenue currently exists as a four-lane, divided highway without sidewalks. Sand Canyon Avenue is currently a six-lane divided highway approaching both the east and west boundaries of the project area. South of 1-5, an existing bike trail parallels the west side of Sand Canyon Avenue and turns westward paralleling the south side of the Metrolink railroad. There is no designated bicycle facility along Sand Canyon Avenue north of the railroad. The proposed project site is bounded by the City of Irvine General Plan Planning Area 12 on the west, and the City of Irvine General Plan East Irvine Historical Area and the City of Irvine General Plan Planning Area 31 on the east. Portions of Planning Areas 12 and 31 are currently undeveloped agricultural lands. The Metrolink railroad crosses Sand Canyon Avenue at grade, approximately 700 feet south of the 1-5 interchange. It consists of two main tracks, utilized by freight trains, Amtrak passenger trains, and Metrolink passenger trains.

Oak Canyon Road/Laguna Canyon Road intersects Sand Canyon Avenue at a signalized intersection approximately 1,200 feet south of the railroad crossing. This road provides access to a recreation vehicle and boat storage yard, the City of Irvine Animal Care Center, the City of Irvine Operation Support Facility, and commercial developments. Laguna Canyon Road is a primary arterial highway aligning to Oak Canyon Road and serves as a major connection and access to the State Route (SR) 133 as well as local access to the areas south and east of Sand Canyon Avenue. Burt Road is a local road, intersecting Sand Canyon Avenue, between the railroad tracks and the southbound 1-5 ramps. This signalized intersection currently serves Traveland, an RV shopping center, to the west, and Old Town Irvine to the east. A private road intersecting Sand Canyon Avenue, approximately 400 feet south of the railroad provides access to the Metrolink facility and storage yard. An existing Unocal service station is located in the northeast quadrant of the Sand Canyon Avenue and Burt Road intersection.

Project Description

The proposed project will consist of the construction of an underpass structure to replace the existing grade crossing along and to the west of the present alignment of Sand Canyon Avenue between northeast of Interstate 5 (1-5) and Oak Canyon Road/Laguna Canyon Road. The project will widen Sand Canyon Avenue from 4 lanes to 6 lanes consistent with City's Master Plan of Highways designation of a Major Arterial Highway. The project will require reconstruction of the Burt Road and Sand Canyon Avenue intersection. Other key features of the project include a stormwater pump station; extension of a new major storm drain facility from Oak Canyon Road/Laguna Canyon Road intersection to the vicinity of Marine Way; relocation of an off-street bike trail; a temporary railroad shoofly to detour train traffic during construction; and corresponding utility relocations required due to the grade separation.

Type of Project *(use Table 1 on instruction sheet)*
Roadway Realignment

County Orange	**Narrative Location/Route & Postmiles:** Not Applicable **Caltrans Projects – EA#** 965100

Lead Agency: City of Irvine

Contact Person	**Phone#**	**Fax#**	**Email**
Steve Ollo	949.724.7562	949.724.7565	sollo@ci.irvine.ca.us

Hot Spot Pollutant of Concern *(check one or both)* **PM2.5 X** **PM10 X**

Federal Action for which Project-Level PM Conformity is Needed *(check appropriate box)*

X **Categorical Exclusion (NEPA)**	**EA or Draft EIS**	**FONSI or Final EIS**	**PS&E or Constructi on**	**Other**

Scheduled Date of Federal Action:

NEPA Delegation – Project Type *(check appropriate box)*

Exempt	**Section 6004 – Categorical Exemption**	X **Section 6005 – Non-Categorical Exemption**

Current Programming Dates *(as appropriate)*

	PE/Environmental	**ENG**	**ROW**	**CON**
Start	2009	2009	2009	2010
End	2009	2009	2009	2011

Project Purpose and Need (Summary): *(attach additional sheets as necessary)*

Project Purpose

The purpose of the proposed improvements is to alleviate the existing traffic congestion and delays occurring at the railroad crossing and to reduce the high accident potential at the crossing. The proposed improvements would enhance vehicular traffic and circulation, and would result in a safer path of travel through the railroad crossing.

Project Need

The need for the project is warranted based on the following critical elements:

- To enhance vehicular traffic and circulation; and
- To provide a safe path of travel through the railroad crossing.

Surrounding Land Use/Traffic Generators *(especially effect on diesel traffic)*

The proposed project site is bounded by the City of Irvine General Plan Planning Area 12 on the west, and the City of Irvine General Plan East Irvine Historical Area and the City of Irvine General Plan Planning Area 31 on the east. Oak Canyon Road/Laguna Canyon Road intersects Sand Canyon Avenue at a signalized intersection approximately 1,200 feet south of the railroad crossing and provides access to a recreation vehicle and boat storage yard, the City of Irvine Animal Care Center, the City of Irvine Operation Support Facility, and commercial developments. A private road intersecting Sand Canyon Avenue, approximately 400 feet south of the railroad provides access to the Metrolink facility and storage yard. An existing Unocal service station is located in the northeast quadrant of the Sand Canyon Avenue and Burt Road intersection.

Opening Year: Build and No Build LOS, AADT, % and # trucks, truck AADT of proposed facility

As the project primarily consists of a roadway realignment, and the project will open in approximately two years from the time that the 2009 existing traffic volumes were obtained, "Existing Conditions" traffic data and operations have been presented in lieu of "Opening Year Conditions" traffic data. There would not be a significant change in traffic volumes; therefore, a comparison of "Existing Conditions" to "Opening Year Conditions" would be negligible.

Existing Conditions Average Daily Traffic

To determine existing ADT on Sand Canyon Avenue south of Burt Road, 24-hour traffic counts were collected on a typical weekday (Thursday May 21, 2009). Detailed traffic data was collected in six vehicle classification categories to take into account the higher than average heavy vehicle (trucks, buses, etc.) mix utilizing Sand Canyon Avenue south of Burt Road as a result of existing land uses in the vicinity of the project. A passenger car equivalent (PCE) factor was applied to each vehicle classification to derive PCE-adjusted ADT on Sand Canyon Avenue south of Burt Road. The existing detailed count data is attached. Table 1 shows existing ADT data on Sand Canyon Avenue south of Burt Road, the vehicle fleet mix, and PCE-adjusted ADT data.

Table 1
Existing Average Daily Traffic Volume – Sand Canyon Avenue South of Burt Road

Vehicle Classification	Vehicles	% of Total Vehicles	PCE Factor	PCE-Adjusted Vehicles
Passenger Vehicles	28,434	95.7%	1.0	28,434
2-Axles Trucks	666	2.3%	1.5	999
3-Axle Trucks	119	0.4%	2.0	238
4 + Axle Trucks	188	0.6%	3.0	564
Recreational Vehicles	63	0.2%	1.75	110
Buses	235	0.8%	1.75	411
Total	**29,705**	**100.0 %**		**30,756**

As shown in Table 1, existing ADT on Sand Canyon Avenue south of Burt Road is 29,705 vehicles, of which 4.3 percent are trucks, buses or recreational vehicles. Adjusted for passenger car equivalents (PCE), the ADT on Sand Canyon Avenue south of Burt Road is 30,756 vehicles.

Existing Conditions Level of Service (LOS)

The City of Irvine performance standard for Sand Canyon Avenue is LOS D or better (V/C ratio not to exceed 0.90). Currently, between Laguna Canyon Road and Burt Road, Sand Canyon Avenue is a 4-lane divided primary arterial highway, with a capacity of 32,000 vehicles per day based on City of Irvine General Plan roadway classifications. Table 2 summarizes the existing V/C and corresponding LOS of Sand Canyon Avenue south of Burt Road based on the PCE-adjusted ADT.

Table 2
Existing Roadway Segment Level of Service

Segment	Capacity (Vehicles/day)	Existing PCE-Adjusted ADT	V/C	LOS
Sand Canyon Avenue south of Burt Road	32,000	30,756	**0.96**	**E**

Note: Deficient segment capacity shown in **bold**.

As shown in Table 2, Sand Canyon Avenue south of Burt Road is currently operating at a deficient LOS based on daily traffic volumes. The City of Irvine requires peak hour link analysis on all segments that exceed the permissible LOS threshold applicable to the segment. The peak hour link analysis determines directional AM and PM peak hour V/C ratios for links that exceed the daily LOS threshold. Peak hour capacity is determined by multiplying the midblock number of lanes in each direction by a lane capacity of 1,600 vehicles per hour. If the directional peak hour V/C surpasses the City LOS threshold, additional lanes are required. The existing directional capacity of Sand Canyon Avenue south of Burt Road is 3,200 vehicles per hour based on two travel lanes in each direction. Table 3 summarizes existing peak hour link analysis for Sand Canyon Avenue south of Burt Road.

Table 3
Existing Roadway Segment Peak Hour Link Analysis

Segment	AM		PM		AM		PM	
	NB/EB	SB/WB	NB/EB	SB/WB	V/C-LOS	V/C-LOS	V/C-LOS	V/C-LOS
Sand Canyon Avenue south of Burt Road	1,087	1,914	1,887	1,007	0.34 – A	0.60 – A	0.59 – A	0.32 – A

As shown in Table 3, Sand Canyon Avenue south of Burt Road is operating at an acceptable LOS based

RTP Horizon Year / Design Year: Build and No Build LOS, AADT, % and # trucks, truck AADT of proposed facility

Year 2035 Conditions Average Daily Traffic

The following forecast future year 2035 ADT volume on Sand Canyon Avenue south of Burt Road was provided by the City of Irvine utilizing the Irvine Transportation Analysis Model (ITAM) 8.1. Table 4 shows future year 2035 ADT data on Sand Canyon Avenue south of Burt Road, the vehicle fleet mix, and PCE-adjusted ADT data.

Table 4
Future Year 2035 Average Daily Traffic Volume – Sand Canyon Avenue South of Burt Road

Vehicle Classification	Vehicles	% of Total Vehicles	PCE Factor	PCE-Adjusted Vehicles
Passenger Vehicles	66,416	95.7%	1.0	66,416
2-Axles Trucks	1,596	2.3%	1.5	2,394
3-Axle Trucks	278	0.4%	2.0	556
4 + Axle Trucks	416	0.6%	3.0	1,248
Recreational Vehicles	139	0.2%	1.75	243
Buses	555	0.8%	1.75	971
Total	**69,400**	**100.0 %**		**71,828**

Forecast Future Year 2035 Conditions Level of Service

The City of Irvine performance standard for Sand Canyon Avenue is LOS D or better (V/C ratio not to exceed 0.90). For forecast future year 2035 conditions, Sand Canyon Avenue between Laguna Canyon Road and Burt Road is planned to be constructed as a 6-lane divided major arterial highway, with a capacity of 54,000 vehicles per day based on City of Irvine General Plan roadway classifications. The future year 2035 ADT volume on Sand Canyon Avenue is forecast to be 69,400 vehicles. It has been conservatively assumed that 4.3 percent will be trucks, buses or recreational vehicles based upon the percentage established for existing conditions, although future City General Plan uses will probably

generate a lower percentage of truck, bus and recreational vehicle traffic. Adjusted for passenger care equivalents, the ADT on Sand Canyon Avenue south of Burt Road is forecast to be 71,282 vehicles. Table 5, summarizes the forecast future year 2035 V/C and corresponding LOS of Sand Canyon Avenue south of Burt Road based on the forecast PCE-Adjusted ADT volume.

Table 5
Forecast Future Year 2035 Roadway Segment Level of Service

Segment	Capacity (Vehicles/day)	Forecast Future Year 2035 PCE-Adjusted ADT	V/C	LOS
Sand Canyon Avenue south of Burt Road	54,000	71,828	**1.33**	**F**

Note: Deficient segment capacity shown in **bold**.

As shown in Table 5, Sand Canyon Avenue south of Burt Road is forecast to operate at a deficient LOS for forecast future year 2035 conditions. Peak hour link analysis has been prepared for forecast future year 2035 conditions since ADT volumes on Sand Canyon Avenue south of Burt Road are forecast to exceed the permissible LOS threshold applicable to the segment. Forecast future year 2035 directional capacity of Sand Canyon Avenue south of Burt Road is 4,800 vehicles per hour based on three travel lanes in each direction. Table 6 summarizes forecast future year 2035 peak hour link analysis for Sand Canyon Avenue south of Burt Road.

Table 6
Roadway Segment Peak Hour Link Analysis

Segment	AM		PM		AM		PM	
	NB	SB	NB	SB	V/C-LOS	V/C-LOS	V/C-LOS	V/C-LOS
Sand Canyon Avenue south of Burt Road	1,718	4,099	3,540	2,417	0.37-A	0.85-D	0.74-C	0.50-A

As shown in 6, Sand Canyon Avenue south of Burt Road is forecast to operate at an acceptable LOS

Opening Year: If facility is an interchange(s) or intersection(s), Build and No Build cross-street AADT, % and # trucks, truck AADT
See Above.

RTP Horizon Year / Design Year: If facility is an interchange (s) or intersection(s), Build and No Build cross-street AADT, % and # trucks, truck AADT
See Above.

Describe potential traffic redistribution effects of congestion relief *(impact on other facilities)*

The Regional Model produced by SCAG predicts ADT volumes based upon socio-economic data received from all of the counties and cities within their jurisdiction. The traffic volumes and peak hour demand are derived from the number of households, population, and number of jobs in the region. The ADT is derived by iterative model runs designed to determine the shortest route for travelers in time and distance. The roadway would not divert to other routes, as a result, the travel demand volume is not predicted vary between the build and no-build alternatives. The build alternative would simply enhance vehicular traffic and circulation, and would result in a safer path of travel through the railroad crossing. The project is not expected to result in the redistribution of traffic and impacts on other facilities are not anticipated.

Comments/Explanation/Details *(attach additional sheets as necessary)*

The EPA's March 2006 guidance document *Transportation Guidance for Qualitative Hot-spot Analysis in PM2.5 and PM10 Nonattainment and Maintenance Areas* references a two step criteria to identify "a significant volume of diesel truck traffic." The first criterion is facilities with greater than 125,000 ADT volumes. If the first criterion is met, the second criterion is that 8 percent or more of said traffic volumes (i.e., 10,000 vehicles or more) are diesel truck traffic volumes. With respect to traffic volumes along the project limits of Sand Canyon Avenue, horizon year (2035) ADT volumes are forecast to be well below the above-mentioned screening-level threshold criteria of 125,000 total AADT traffic volumes. Also, the maximum heavy truck ADT volumes during the horizon year (2035), would be well below the threshold screening criteria of 10,000 ADT for heavy trucks. As such, the project would not to result in a substantial number of diesel vehicles within the project area (i.e., the project limits of Sand Canyon Avenue). According to the Transportation Conformity Guidance for Qualitative Hot-spot Analyses in $PM_{2.5}$ and PM_{10} Nonattainment and Maintenance Areas, this project is not a project of air quality concern under 40 CFR 93.123(b)(1).